

THE SAPPERS OF THE SURVEYORS.

I AM glad to see that more than one of your correspondents have noticed an abuse of which they have just reason to complain,—the employment of hired soldiers to take away the business of the professional surveyors. I do not write in a party spirit: I do not attribute the evil to any particular individuals:—the mischief appears to me to arise naturally from that system of centralisation which we of the present day have so strangely allowed to obtain a footing in almost every institution of the country. The plan is essentially military. It requires that uncontrolled and irresponsible power shall be lodged in the hands of a few individuals, and that their orders shall be executed by subordinates, whose sole duty is passive and unreflecting obedience. I have watched the growth of the system for years, and have long foreseen the effect it must ultimately have upon the prospects and the character of all professional men. It is under this system that the surveyor, after having at a great expense become qualified for his profession, sees the money taken from him in taxes employed to enlist, train, and teach a body of soldiers, who are then sent out to attempt the very work by the performance of which alone he can hope to obtain a livelihood. I feel assured that the wrong will ultimately extend to all professions, and I heartily wish that it had begun with some class of men who would not have submitted so tamely as the surveyors. I should like to see a wealthy rector stopped at the church door by Private Murphy, with "sure your Reverence and myself will do the preaching to-day, and receive the money to-morrow,—by order of the commissioners." Or I wish that Corporal Kane would attend at the rent-day of some rich landlord, with orders to receive the rents on behalf of his commanding officer. The growth of the evil would then be stopped.

I consider it too late for the surveyors to complain: to them the mischief is done; and it is therefore with pleasure that I watch the extension of the injustice to the members of other professions, from whom I trust it will meet a more efficient resistance. I. T. S.

IMPROVEMENT OF LAMBETH AND SOUTHWARK.
OFFICE OF WOODS.

THE districts of Lambeth and Southwark have for a length of time been expecting some announcement as to what will be the extent of improvement when the Woods and Forests determine where Westminster-bridge is to be erected, when the roads there are determined, the new market for meat and vegetables settled, the course of the metropolitan sewerage determined, and the lines for the railways. All these matters have from time to time been promised.

Do, pray, Mr. Builder, tell an anxious proprietor the situation in which they will be involved. The Office of Woods, by thus delaying the announcement of their plans, are doing great injury: inevitable ruin must be the result to many. A. SUTHERLAND.

DISFIGUREMENT OF KENSINGTON GARDENS.

FROM the east side of the Serpentine river in Kensington Gardens, and from the road in Hyde Park, there is a charming prospect to the west through a broad, open, grassy glade towards the old Kensington Palace. When the Serpentine was cleared out last year, one of the places chosen in which to deposit the mud was this lawn-like glade, there being, of course, a thousand equally convenient spots concealed by the trees close at hand. Now surely every person, from the highest to the lowest, who was concerned in this proceeding, should be publicly reprimanded. Not content, however, with this insult to the public, the mud deposited in other places, out of general observation, has been carefully removed, while the above is suffered, at nearly a year's delay, to remain. Is not this a case of such stupidity as to call for an example on its perpetrators?

DAVID SINGLEHEART.

ARCHITECTS' BENEVOLENT SOCIETY.

THE first annual meeting of the friends of this charity was held on Wednesday afternoon, at the Freemasons' Tavern, Mr. Sydney Smirke in the chair. The report of the Council was read and unanimously adopted. This recently-established society has for its laudable object the administering the same kind of relief as that which has been so long supplied by the Artists' General Benevolent Society, but confining itself exclusively to the regularly educated members of the profession of architecture, and although it has only been founded a few months, it has received very considerable support. At the close of last year about 150 gentlemen had become annual subscribers, and 30 or 40 more had since joined. The sums received up to the 31st of December last amounted altogether to 3900*l.*, of which 300*l.* had been invested, and the remainder left to be applied to the ordinary purposes of the society. Some large donations had been received this year. The Royal Institute of British Architects had kindly granted to the association the use of their rooms for the meetings of the council, thus effecting a considerable saving to the society, and adding greatly to the convenience of its members. The council had drawn up a complete code of bye-laws, which was read to the meeting, and, after some discussion, was approved of and agreed to. After other routine business was done, thanks were voted to the chairman, and the meeting separated.

We cannot but feel a deep sympathy in the charitable objects of this society, and we earnestly call upon those members of the profession, especially in the provinces, who have not yet become acquainted with this institution, to lend their assistance in furtherance of its interests.

THE ARCHITECTURAL EXHIBITION.

AT a meeting of the committee on the 11th ult. it appeared that all the old supporters of this undertaking are determined not to forsake it under the difficult circumstances of the present year, and several new names were announced (many of them well known in the profession, as subscribers and as promising contributors of drawings. We must, however, observe that the circular put forth has hardly received that response which the object merits. We think there can be no question but that the undertaking will be carried through, and probably gentlemen will find cause to regret hereafter that they have not the credit of having joined in the earliest stages. We hope that before the next committee meeting those who are animated by a desire to see their art appreciated and advanced in public estimation will have come forward, and put the committee in a position to incur the liability necessary in the heavy rent of a gallery. No time should be lost, as every suitable place is being rapidly engaged for other purposes.

GRINDING AND POLISHING PLATE GLASS.

THE grinding and polishing of plate glass by machinery is perhaps the largest example of the production of plane surfaces by grinding, and a brief outline of the mode of proceeding will be here offered.

In the manufacture of plate glass, the materials are first fused in melting pots made of Stourbridge clay, which measure from 30 to 40 inches diameter, and 3 to 4 feet high. The pots are made in the form of a truncated cone, being rather smaller at the bottom than the top, and are capable of containing a sufficient quantity of the melted glass to form four or five plates of the largest size. After the materials have been thoroughly fused together, a sufficient quantity of the melted glass to form a single plate, is removed by iron ladles from the large melting pot to smaller pots called *cuettes*, which have been previously heated in another furnace. The glass, now in a pasty condition, is placed in the pots while they are in the furnace, which is then closed up, and kept at a considerable heat for some hours, until all the air bubbles have been expelled and the glass is sufficiently fluid to be poured.

The pot is then removed from the furnace,

and carried on a truck to an iron table or bench, having a flat surface about 12 feet long and 10 feet wide: two bars of iron of equal thickness to the desired plate are laid upon the face of the table near the edges. The fluid glass is poured on the table and spread with iron or copper tools: an iron roller about 15 inches diameter, equal in length to the width of the table, and weighing about 30 cwt. is rested upon the two iron bars, and traversed over the face of the glass to roll it out like dough to a uniform thickness. To insure the rotation of the roller in a straight line along the plate, it is provided at each end with toothed wheels that work in corresponding racks fixed on the sides of the iron table, and the roller is drawn along the table by means of two chains, coiled around the ends of the cylinder and worked by a winch.

When the glass has been rolled flat, the cylinder is received at the end of the table upon two arms counterpoised by means of levers placed beneath, so as to allow of the heavy roller being raised or lowered by two or three men. The plate, still red-hot and yielding, is slid from the table upon the flat surface of a carriage, which is wheeled to the annealing oven, upon the bed of which the plate is pushed and allowed to remain for several hours to cool gradually.

The plates, when cold, are examined as to their condition, and such plates as present defects in the glass, or irregularities in the surface that it would be tedious to grind out, are cut with the diamond into smaller pieces; but the nearly perfect plates are kept as near their full size as possible, and merely squared on the edges.

The plates of glass now measure about half-an-inch thick, and the surface is full of small irregularities, presenting a mottled appearance, the roughest side being generally that which was placed downwards upon the bed of the annealing oven, and copied all the irregularities of the bricks of which the bed of the oven is formed. The side of the glass that was uppermost in the oven is comparatively smooth and bright from the action of the fire, although in many cases this surface is not so nearly flat as the lower. The plates have therefore to be ground flat and polished on both sides: formerly this was effected entirely by hand, but of late years the rough grinding with coarse sand, and the polishing with crocus, are almost always done by machinery, and hand labour is only resorted to for the intermediate process of smoothing with fine emery.

The grinding and polishing machines employed for plate glass differ somewhat in construction in various manufactories; but a single example of each will sufficiently explain the general method.

The grinding machines employed for the largest plate glass are arranged in pairs along the grinding room: every pair of machines is driven by one central beam, and consists of two benches of stone 15 feet long, 2 feet wide, and 18 inches high, placed about 10 feet asunder; upon each of these benches one or more plates of glass are embedded in plaster of Paris, close together, and quite level. Other plates of glass are cemented upon the lower faces of two swing tables or runners, which are traversed over the fixed beds by a horizontal frame or beam about 30 feet long: the machinery for driving the beam is fixed in a frame about 6 feet square and 15 inches high, placed between the two grinding benches. A horizontal shaft, fixed underground, extends throughout the length of the grinding room between the lines of benches, and the motion from the shaft is communicated to every pair of machines by a pair of bevil wheels leading to a central crank that revolves horizontally, and has a radius of about 2 feet; the arm of the crank is attached by a pivot to the centre of the horizontal beam. Four other cranks of the same radius are placed parallel to the central driving crank, one at each corner of the square frame, and serve to guide the traverse of the horizontal beam, which is thus swung in a circle of four feet diameter in a manner somewhat similar to the grinding bed for marble, fig. 1099. The beam is supported at various parts of its length by chains suspended from